

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97-ANE-44-AD; Amendment 39-11856; AD 2000-16-02]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW4164, PW4168, and PW4168A Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to Pratt & Whitney PW4164, PW4168, and PW4168A series turbofan engines. The current AD requires initial and repetitive torque checks for loose or broken bolts used to secure the engine to the airplane made from INCO 718 material (front pylon mount bolts). The current AD also requires the replacement of the bolts, if necessary, with new bolts, and establishes a new cyclic life limit for the front pylon mount bolt. This amendment adds requirements for initial and repetitive torque checks of front pylon mount bolts made from a new material, MP159, and initial and repetitive visual inspections of the primary mount thrust load path. This amendment is prompted by the use of front pylon mount bolts made from MP159 material and fatigue testing that shows that the forward engine mount bearing housings have insufficient fatigue life expectancy. The actions specified by this AD are intended to prevent front pylon mount bolt and primary mount thrust load path failure, which could result in an engine separating from the airplane.

DATES: Effective date October 16, 2000. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of October 16, 2000.

ADDRESSES: The service information referenced in this AD may be obtained from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-8860, fax (860) 565-4503. This information may be examined at the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Tara Goodman, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7130, fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD-98-04-14, Amendment 39-10326 (63 FR 9730, February 26, 1998), applicable to Pratt & Whitney (PW) PW4164, PW4168, and PW4168A series turbofan engines was published in the **Federal Register** on March 24, 2000 (65 FR 15878). That action proposed to require, in addition to the requirements of the current AD, initial and repetitive torque checks of front pylon mount bolts made from MP159 material, and initial and repetitive visual inspections of the primary mount thrust load path.

Comments Received

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Changes to the Required Actions

One comment suggests wording changes to the required actions in an effort to make them similar to the published service bulletins. The comment suggests that paragraph (a)(1) be modified to read “..., with fewer than 1,000 cycles-since-new (CSN) on the effective date of this AD, ...”.

The FAA agrees. The proposed initial and repetitive inspections for bolts made from INCO 718 material with 1,000 or fewer cycles in service (CSN) on the effective date of the AD were added in response to a comment received following the publication of the current AD. That comment pointed out that bolts with 1,000 or fewer CSN on the effective date of that AD have no initial or repetitive inspection requirement.

Since the current AD address bolts with “more than 1,000” CSN, the proposal added the younger bolt population by using the term “1,000 or fewer” CSN. The comment merely asks the FAA to adjust the dividing line between those two populations of bolts to conform to the service bulletin. Therefore, subparagraph (a)(1) has been changed to read “fewer than 1,000” CSN and the subparagraph that defines the next older population of bolts has been changed to read “1,000 or more” CSN.

Another comment recommends that subparagraph (a)(1)(ii), which reads, “Within 250 cycles-in-service (CIS) after the effective date of this AD,” be deleted.

The FAA agrees. For the population of bolts that have fewer than 1,000 CSN on the effective date of the AD, the initial inspection is generally not required until after the bolt reaches 1,000 CSN. The only exception would be if the engine were removed for cause.

Another comment recommends that proposed subparagraph (a)(4)(ii) be changed to read “thereafter, perform torque checks at intervals not less than 5,750 or greater than 6,250 CIS since last torque check, not to exceed 11,000 CSN.”

The FAA does not agree. The reinspection interval suggested is significantly different than the requirement proposed, which was to reinspect not less than 750 CIS or greater than 1,250 CIS since last torque check. The reinspection requirements for INCO 718 material bolts should be identical with the original AD published February 26, 1998, AD 98-04-14. The structure of the wording in the NPRM to supersede was inadvertently changed from the structure of the wording of the requirements of the original AD.

Another comment recommends that proposed paragraph (c), requiring inspections for bolts made from MP159 material, be revised to separate bolts into younger and older populations in the same manner as with bolts made from INCO 718 material.

The FAA agrees and has revised paragraph (c) to reflect two populations of bolts, those with fewer than 1,000 CSN on the effective date of the AD and those with 1,000 or more CSN on the effective date of the AD.

Another comment recommends that proposed paragraph (d), requiring inspections of the primary mount thrust load path, also reflect engines with fewer than 1,000 CSN on the effective date of the AD and those with 1,000 or more CSN on the effective date of the AD.

The FAA agrees and has revised paragraph (d) accordingly.

Lastly, a comment suggests that paragraph (d)(3) be changed to read “prior to further flight, inspect and replace mount details in accordance with paragraph 4 of the accomplishment instructions of the service bulletin, if the visual inspection indicates the secondary thrust load path was activated.”

The FAA agrees in part. The suggested wording is not specific as to what constitutes activation of the secondary thrust load path. The service bulletin uses the word “damage” while the proposed paragraph (d)(3) uses the word “crack” to be more specific. The FAA does not agree that the word “crack” should be replaced with the word “damaged.” The FAA agrees, however, that paragraph 4 of the accomplishment instructions of the service bulletin should be referenced in order to specify the manner in which cracked components must be replaced. That change has been made, but with a more specific citation to the SB referenced.

Concurrence with the rule

Another comment expressed no objection to the proposed rule, as there should not be any adverse operational impact.

Other changes to the proposed rule

A further review of the proposed rule has revealed the need for some additional minor changes that neither alter the scope of the rule nor change the substance of the required actions. Proposed paragraph (a)(2) provides repetitive inspections that were intended to be applicable for only those bolts inspected under paragraph (a)(1). Therefore, paragraph (a)(1) has been restructured to include both the initial and repetitive inspection requirements in a manner similar to proposed subparagraphs (a)(3) and (a)(4). Proposed subparagraph (a)(2) has been deleted and the remaining subparagraphs renumbered.

Also, proposed subparagraph (a)(5), which addresses bolts made from INCO 718 material that have 8,000 or more CSN on the effective date of the AD, has been deleted. The original AD and the NPRM included a requirement to accomplish a full system inspection as referenced in the Appendix of the SB. This requirement is not necessary because a full torque check of the bolts is required at 6,000 CSN and the bolts will be retired by 11,000 CSN. The full system inspection is part of the normal maintenance requirements for the airplane.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Economic Impact

There are approximately 75 engines of the affected design in the worldwide fleet. The FAA estimates that 10 engines installed on airplanes of U.S. registry will be affected by this AD, that it will take approximately 3 work hours per engine to accomplish the required actions, and that the average labor rate is \$60 per work hour. Required parts will cost approximately \$18,832 per engine. Based on these figures, the total cost impact of the AD on U.S. operators is estimated to be \$190,120.

Regulatory Impact

This rule does not have federalism implications, as defined in Executive Order 13132, because it does not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Accordingly, the FAA has not consulted with state authorities prior to publication of this rule.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§39.13 [Amended]

2. Section 39.13 is amended by removing Amendment 39-10326 (63 FR 9730, February 26, 1998) and by adding a new airworthiness directive, Amendment 39-10326, to read as follows:

AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460



U.S. Department
of Transportation
**Federal Aviation
Administration**

AD's are posted on the internet at <http://av-info.faa.gov>

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2000-16-02 Pratt & Whitney: Amendment 39-11856. Docket 97-ANE-44. Supersedes AD 98-04-14, Amendment 39-10326.

Applicability: Pratt & Whitney (PW) PW4164, PW4168, and PW4168A series turbofan engines, with front pylon mount bolts, part numbers (P/Ns) 54T670 or 51U615, installed. These engines are installed on but not limited to Airbus Industrie A330 series airplanes.

Note 1: This airworthiness directive (AD) applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent front pylon mount bolt and primary mount thrust load path failure, which could result in engine separation from the airplane, accomplish the following:

INCO 718 Material Bolts Torque Checks

(a) Perform initial and repetitive torque checks of INCO 718 material front pylon mount bolts, P/N 54T670, and replace, if necessary, with new bolts, in accordance with the Accomplishment Instructions of Pratt & Whitney (PW) Service Bulletin (SB) No. PW4G-100-A71-9, Revision 1, dated November 24, 1997, as follows:

(1) For front pylon mount bolts, P/N 54T670, with fewer than 1,000 cycles-in-service-since-new (CSN) on the effective date of this AD, accomplish the following in accordance with Part (A) of the Accomplishment Instructions of the SB:

(i) Perform an initial torque check prior to accumulating 1,250 CSN or at the next engine removal for cause, whichever occurs first.

(ii) Thereafter, perform torque checks at intervals not fewer than 750 or greater than 1,250 cycles in service (CIS) since last torque check, not to exceed 11,000 CSN.

(2) For front pylon mount bolts, P/N 54T670, with 1,000 or more CSN but fewer than 5,750 CSN on the effective date of this AD, accomplish the following in accordance with Part (A) of the Accomplishment Instructions of the SB:

(i) Perform an initial torque check within 250 CIS after the effective date of this AD, or at the next engine removal for any cause, whichever occurs first.

(ii) Thereafter, perform torque checks at intervals not fewer than 750 or greater than 1,250 CIS since last torque check, not to exceed 11,000 CSN.

(3) For front pylon mount bolts, P/N 54T670, with 5,750 or more CSN on the effective date of this AD, accomplish the following in accordance with Part (B) of the Accomplishment Instructions of the SB:

(i) Perform an initial torque check within 250 CIS after the effective date of this AD, or prior to the next engine removal for any cause, whichever occurs first.

(ii) Thereafter, perform torque checks at intervals not fewer than 750 or greater than 1,250 CIS since last torque check, not to exceed 11,000 CSN.

(4) Prior to further flight, replace all four bolts in accordance with Part (A), Paragraph 1(D) of the Accomplishment Instructions of the SB, if any of the bolts are loose or broken.

INCO 718 Material Bolts Life Limit

(b) This AD establishes a new life limit of 11,000 CSN for front pylon mount bolts, P/N 54T670. Except as provided in paragraph (e) of this AD, no front pylon mount bolts, P/N 54T670, may exceed this new life limit after the effective date of this AD.

MP159 Material Bolts Inspections

(c) Perform initial and repetitive torque inspections of front pylon mount bolts, P/N 51U615, in accordance with the Accomplishment Instructions of PW SB PW4G-100-A71-20, dated December 9, 1999, as follows:

- (1) For front pylon mount bolts with fewer than 1,000 CSN on the effective date of this AD, perform the initial torque inspection at the earlier of the following:
 - (i) Before accumulating 1,250 CSN, or
 - (ii) The next engine removal for any cause.
- (2) For front pylon mount bolts with 1,000 or more CSN on the effective date of this AD, perform the initial torque check at the earlier of the following:
 - (i) Within 250 CIS after the effective date of this AD, or
 - (ii) The next engine removal for any cause.
- (3) Thereafter, perform torque inspections at intervals not fewer than 750 or greater than 1,250 CIS since last torque inspection.
- (4) Prior to further flight, replace all four bolts, in accordance with Paragraph 1 (D) of the Accomplishment Instructions of the SB, if any are loose or broken.

Primary Mount Thrust Load Path Inspections

(d) Perform initial and repetitive visual inspections of the primary mount thrust load path, in accordance with the Accomplishment Instructions of PW SB PW4G-100-A71-18, Revision 1, dated December 9, 1999, as follows:

- (1) For forward engine mount assemblies with fewer than 1,000 CSN on the effective date of this AD, perform the initial visual inspection at the earlier of the following:
 - (i) Before accumulating 1,250 CSN, or
 - (ii) The next engine removal for any cause.
- (2) For forward engine mount assemblies with 1,000 or more CSN on the effective date of this AD, perform the initial visual inspection at the earlier of the following:
 - (i) Within 250 CIS after the effective date of this AD, or
 - (ii) The next engine removal for any cause.
- (3) Thereafter, perform visual inspections at intervals not fewer than 750 or greater than 1,250 CIS since last visual inspection.
- (4) Prior to further flight, replace all cracked parts with serviceable parts and inspect the primary thrust load path components in accordance with Paragraph 4 of the accomplishment instructions of the SB.

Alternative Method of Compliance

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office (ECO). Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the ECO.

Special Flight Permits

(f) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(g) The inspection shall be done in accordance with the following PW SB:

Document No.	Pages	Revision	Date
PW4G-100-71-9	11	Rev. 1	November 24, 1997
PW4G-100-A71-20	10	--	December 9, 1999
PW4G-100-A71-18	12	Rev. 1	December 9, 1999

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-8860, fax (860) 565-4503. Copies may be inspected at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

Effective Date

This amendment becomes effective on October 16, 2000.

FOR FURTHER INFORMATION CONTACT: Tara Goodman, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7130, fax (781) 238-7199.

Issued in Burlington, Massachusetts, on August 1, 2000.

David A. Downey, Assistant Manager, Engine and Propeller Directorate, Aircraft Certification Service